EVALUATION OF MICROTENSILE BOND STRENGTH AND MICROLEAKAGE OF A ONE-STEP SELF-ETCH ADHESIVE

Afnan AlZain, George Eckert[1] and (Jeffrey Platt), Department of Restorative Dentistry, Indiana University School of Dentistry, Indianapolis, IN, 46202

New dental glue (G-aenial Bond-GB) was developed to increase the strength of bonding the white tooth filling to the tooth. An extra roughening step of the tooth surface using a specific acid should help the flow of the glue to the tooth and increases the strength of the bond between the tooth and the filling. Therefore, this study was done to evaluate how strong the bond is between the filling and the tooth using GB, and how much GB leaks and compare both tests with two other glue products and, with and without adding an extra roughening step.

For the bond strength test, human molars teeth were divided into 5 groups, each containing 15 teeth. In 3 groups, each glue type was applied on tooth dentin according to company's instructions. In the last 2 groups an extra roughening step using a specific acid was added before applying the glue. The samples were stored in fake saliva where four samples were soaked for 48h and four samples were placed in a machine (thermocycling) that resembles drinking hot and cold beverages where samples are exposed to hot and cold water for 40 days and then the strength of the bond was tested ($\alpha=0.05$). The broken edges were examined using a light microscope.

For the leak test, human molars were divided randomly into the same 5 groups as bond strength test but each containing 11 teeth. A cavity was prepared and filled on the check and tongue sides of the tooth. Teeth were then also subjected to thermocylcling and stored for four weeks, soaked in dye for 24 hours and sectioned. The dye penetration was evaluated using light microscopy ($\alpha=0.05$).

Bond strength of GB was significantly higher when an acid roughening step was added. No significant difference in leak of GB was observed.

[1]Department of Biostatistics, Indiana University School of Medicine, Indianapolis, IN 46202

Materials were supplied by GC America and Ultradent.